IRON AND STEEL STAKEHOLDER MEETING
Possible Revisions to 40 CFR Part 420
Iron and Steel Effluent Limitations Guidelines
CHICAGO, ILLINOIS
JANUARY 27, 1999

This document summarizes the Iron and Steel stakeholder meeting sponsored by the Environmental Protection Agency (EPA or the Agency) at EPA Region 5 in Chicago, Illinois, January 27, 1999. The primary objectives of the meeting were to present the technology bases for EPA's preliminary options for possible revisions to 40 CFR Part 420 and to solicit comments, issues, and new ideas from interested stakeholders. Attendees at the meetings included representatives from several iron and steel manufacturing facilities, iron and steel trade associations, environmental groups, EPA's effluent limitations guidelines task force, EPA's Office of Water, EPA's Office of Air Quality Planning and Standards (OAQPS), EPA's Office of General Council, and EPA's contractors for this project. A list of attendees is included in Attachment A.

During the meeting, EPA presented process flow diagrams showing preliminary technology options and potential best management practices (BMPs) that may be incorporated into a revised Part 420 and/or included in National Pollutant Discharge Elimination System (NPDES) permit and pretreatment guidance. The presentations were organized by type of manufacturing process. A discussion period followed each presentation. EPA requested ideas from the stakeholders to identify useful incentives for greater pollution control. Although no formal record of the discussions was made, this document presents a summary of EPA's meeting notes and preliminary responses to the issues raised. The summary is divided into the following sections:

- General statements, issues, and concerns; and
- Technical issues related to cokemaking, integrated steelmaking through hot forming, non-integrated steelmaking, and steel finishing.

At the meeting, EPA encouraged participants to supplement their oral statements with written statements and supporting data. In that regard, EPA provided a set of data-quality protocols for use when submitting data for this rulemaking effort. This handout, along with all other handouts and meeting summaries, were posted on the EPA Iron and Steel web site in February 1999, at http://www.epa.gov/OST/ironsteel/.

The statements, issues, and concerns summarized below were presented by members of the audience during the stakeholder meetings. EPA is currently performing data collection and is beginning to perform certain data analysis tasks. When possible, EPA responded to questions at the stakeholder meetings. In many instances, preliminary responses have been provided in this document to describe EPA's current thinking. For many of the issues raised, however, it is too early in the process for the Agency to provide responses that may represent its final position on proposed revisions to Part 420.

General Statements, Issues, and Concerns

1) One stakeholder stated that American Iron and Steel Institute (AISI) performed a study in 1992 or 1993 on scrap steel at LTV - Indiana Harbor Works. Approximately 80 heats known to contain high and low concentrations of zinc were melted, and the impacts on air and water were assessed as well as the efficiency of the furnaces. It was a confidential study, and it is unknown whether the results of the study were published.

   Response: EPA will request a copy of the study from AISI and LTV Steel and attempt to determine whether the results are relevant to the review of 40 CFR Part 420.

2) In terms of the compliance schedules, would new technology based limitations be effective immediately?

   Response: Section 301(b)(2) of the Clean Water Act requires that best available technology (BAT) effluent limitations guidelines be achieved three years after the date of promulgation by the Administrator, but not later than March 1, 1989. Thus, NPDES permits for facilities subject to a revised effluent limitations guideline issued after March 1, 1989 must require immediate compliance with any effluent limitations based upon the new BAT effluent limitations guidelines. However, in the exercise of their enforcement discretion, permit authorities may issue contemporaneous administrative orders that include a reasonable compliance schedule to achieve the new effluent limitations. Such compliance schedules should not exceed three years from date of promulgation of the revised effluent limitations guidelines. For Pretreatment Standards for Existing Sources (PSES), Section 307(b)(1) of the Clean Water Act authorizes EPA to afford indirect discharges up to three years from the date of promulgation of the new PSES to comply with those standards.

3) Will EPA's guidance for the inclusion of limitations and enforcement of permits be included in the preamble of the rule?

   Response: For this rule, EPA plans to include detailed implementation guidance for permit writers in the technical development document or in a separate permit and pretreatment program guidance document. The guidance presented by the Engineering and Analysis Division will focus on implementation issues. To the extent deemed appropriate by EPA's Office of Enforcement & Compliance Assurance, guidance on enforcement may also be included.

4) When performing costing analyses, the Agency should consider that facilities design treatment systems to have the ability to treat maximum pollutant loadings on maximum production days.

Response: EPA appreciates this observation and agrees that the capital or investment costs for water pollution control facilities should include provisions for dealing with maximum hydraulic loads and maximum pollutant loadings.

Production

5) The method ultimately used by EPA for determining appropriate production rates to calculate allowable mass loadings should be put in the regulation for consistency. Stakeholders are concerned that permit writers should write the permits the same way.

Response: EPA agrees with this statement. EPA plans to thoroughly review the production basis for the regulation and include in the regulation a clear statement of how production is to be taken into account to develop limitations or standards in NPDES permits or pretreatment control mechanisms.

6) How will EPA deal with the cyclic nature of the industry? The stakeholder suggested that the only way for a facility to be in compliance 100% of the time is to set limits based on maximum production.

Response: EPA does not agree it is necessary to base permit limits on maximum production to assure compliance with the regulation. The current regulations at 40 CFR § 420.04 and the NPDES permit regulations at 40 CFR § 122.45(b)(2) require that NPDES permit limits be based on a "... reasonable measure of actual production." EPA expects that any revisions to its production normalizing basis for Part 420 will be consistent with, but more specific than, the general guidance just cited. Section 403.6(c)(3) of the Clean Water Act requires that the "average rate of production [for indirect dischargers] shall be based not upon the designed production capacity but rather upon a reasonable measure of the Industrial user's actual long-term daily production." EPA believes that wastewater treatment facilities must be designed with sufficient hydraulic and waste loading capacity to effectively treat wastewaters at the maximum expected production and flow for the production facilities served by the wastewater treatment system. EPA also does not agree with the implication from this question that wastewater flow, untreated wastewater pollutant loadings, and treated wastewater pollutant loadings are affected on a linear basis with increased production. In EPA's experience, this is particularly not the case with respect to high rate recycle systems where the recycle flow rate and discharge flow rate are not increased on a one-for-one basis with production.

7) Has EPA considered using permit limitations in pounds per ton of steel (lbs/ton) when issuing the permits?

Response: EPA has considered implementing production-based effluent limitations guidelines as suggested by the stakeholder, but found this approach to be impractical for automated compliance tracking and for outfalls or compliance monitoring points where production facilities from more than one type of operation are limited (e.g., steel finishing mills where multiple processes are limited and monitored at one location). Also, this approach is not consistent with the NPDES permit regulations at 40 CFR 122.45(f), which require that NPDES permit limits be expressed in terms of mass of pollutant per unit of time (e.g., lbs/day, kg/day).

Technology-Based Limitations vs. Water Quality-Based Effluent Limitations

8) A stakeholder raised issues related to the use of mass-based standards. The stakeholder understands that this type of standard encourages water conservation, but sometimes, the mass-based standard does not seem to be effective. For instance, while the stakeholder's site does not have a permit limit for hexavalent chromium, analyses for this pollutant have resulted in low concentrations (below the method detection limit) in the system. However, if one were to calculate the mass-based allowance for hexavalent chromium, the site would be out of compliance. A mass-based loading greater than the potential allowable limit was attained by multiplying the method detection limit and the flow. Another stakeholder added that in Indiana, the sites are required to perform calculations with the method detection limit of a non-detect rather than zero or a value of one-half the detection limit.

Response: In circumstances described by the stakeholder, it is often preferable to include mass-based effluent limitations for pollutants such as hexavalent chromium, which are treated in low-volume waste streams prior to mixing with higher volume waste streams that do not contain that pollutant. This approach is permissible under the NPDES permit regulations (see 40 CFR 122.45(h)). With respect to the second issue (determining compliance when analytical results are not detected), EPA believes this statement pertains to water quality-based effluent limitations specified in Indiana water quality regulations that implement the Great Lakes Water Quality Initiative. EPA does not anticipate this will be an issue for determining compliance with technology-based effluent limitations that may be derived from a revised Part 420. Nonetheless, EPA is aware of this issue and hopes to include specific provisions in the regulation or in permit and pretreatment program guidance to ensure reasonable compliance determinations are made.

9) In Indiana, the protocol for reporting monitoring data is specified in the Great Lakes Water Quality Initiative. Are these protocols transferrable to an NPDES technology based permit?

Response: See the response to the statement in paragraph 8.

10) As a follow up to the discussion described in paragraph 9, the stakeholder suggested that it would be confusing to report water quality derived limits one way and technology based limits another way.

Response: Although EPA will attempt to minimize confusion about reporting under NPDES permits and pretreatment permits, there may be unavoidable situations concerning implementation of state or local rules over which EPA has no control.

11) Concern was expressed about flow regulation during storm events (e.g., rain).

Response: EPA is aware that implementation of storm water pollution prevention plans and oil and chemical spill prevention and control strategies have resulted in collection of potentially contaminated storm water from immediate process areas and spill control containment structures. EPA plans to address this issue in the regulation in certain circumstances in terms of storm water allowances and/or in the form of specific guidance to permit writers.

12) How do mixing zones impact the effluent limitations guidelines?

Response: Under certain circumstances, mixing zones are considered when developing NPDES permit water quality-based effluent limitations (WQBELs). Mixing zones are not considered in development of the technology-based effluent limitations guidelines subject of this review. The technology-based effluent limitations guidelines are focused on economically achievable process modifications, wastewater treatment and recycle, and combinations thereof, independent of any ambient water quality considerations.

Water Bubble

13) When pollutants are traded via the water bubble provision, how does EPA or industry ensure that no additional pollutants "come along for the ride"? Trading among toxics is discouraged and would not take into account bioaccumulative pollutants.

Response: When the water bubble rule was adopted in 1982 and 1984, EPA carefully examined the wastewater characteristics and pollutants in the different wastewater streams generated from cokemaking, basic steelmaking, and steel finishing operations. This review led to the restrictions contained in the current water bubble rule (see 40 CFR § 420.03). In this review of Part 420, EPA may propose revisions to the water bubble rule to enhance its utility. As part of this review, EPA will again carefully consider any modifications to ensure use of the water bubble will prove environmentally beneficial as well as economically attractive.

14) Allowing water bubble trading for cold forming is encouraged. More water bubble use is anticipated with the promulgation of this regulation to allow flexibility for treating wastewater at facilities.

Response: See the response to the statement in paragraph 13.

Inclusion of Metal Finishing (40 CFR Part 433) Regulations

15) Incorporation of the metal finishing regulations into Part 420 would streamline the permitting process and is encouraged.

Response: EPA agrees with this observation.

16) Would the inclusion of the metal finishing regulations into Part 420 affect any stand alone metal finishers?

Response: EPA's current thinking is that large, stand-alone steel finishing plants that include steel finishing operations limited currently by Part 420 (e.g., acid pickling, cold rolling, alkaline cleaning), and metal finishing operations (e.g., electroplating or other coatings), will be regulated by a revised Part 420.

Total Metals vs. Dissolved Metals; Cyanide

17) One person observed that total cyanide should be kept in the regulations if that is what the data reflect. Another person suggested a limit for total cyanide requires treatment of iron complexed cyanides. The regulations should be based on free cyanide, not total cyanide. Moreover, such treatment generates large amounts of sludge and has a high energy requirement.

Response: EPA is considering whether to limit free cyanide instead of or in addition to total cyanide for cokemaking, sintering, and blast furnace operations.

18) One stakeholder suggested that since water quality limitations are based on dissolved metals, EPA's rule should do the same. Another person suggested that total metals should be kept in the regulation.

Response: EPA plans to regulate total metals in the revised Part 420 regulation. Treatment technologies that will be considered are those that provide for precipitation of dissolved metals and removal of the metal precipitates in the form of wastewater sludge. As an extreme example, if the regulation were based on dissolved metals, dischargers could comply by developing metal precipitates and discharging the precipitates rather than removing the precipitates. This does not represent good wastewater engineering practice or the best available technology.

19) A new analytical method for cyanide (Method 1600) is being developed by the Agency and should be incorporated into this regulation.

Response: At this writing, EPA does not have sufficient data for cyanides in different forms in different steel industry wastewaters using proposed Method 1600 to consider Method 1600 as the Part 136 method for compliance determinations. EPA will consider Method 1600 when sufficient method comparison data are available.

Oil and Grease Analytical Methods

20) One company has collected and analyzed samples using both oil and grease methods (hexane extractable and Freon extractable) for a blast furnace, a hot forming mill, and a central treatment plant. They report that there is little correlation between the methods.

Another company representative indicated that the company has been analyzing for oil and grease with the hexane extractable method for almost a year and a half while still meeting their current limitations. Hexane extractable analyses for oil and grease are performed by many facilities in the industry.

Another company did not see any correlation between the two oil and grease analytical methods when analyzing samples from a cold mill, a hot mill, and a central treatment plant. The results of the analyses returned more hexane extractable samples showing higher results than Freon, than hexane extractable samples showing lower results than Freon.

Response: EPA has collected a number of split samples for Freon- and hexane-extractable analyses of oil and grease in several types of steel industry wastewaters. These data will be evaluated as part of the rulemaking process, although EPA expects, based on its analyses to date, the Part 136 method used for compliance determinations will be the hexane-extractable method.

Proposed Incentives Program

21) Although incorporating tax incentives into the regulation is out of EPA's reach, the stakeholders may be able to attain tax incentives through other means.

22) Would voluntary participants in an incentives program be required to use a specific technology to meet program standards?

Response: It is highly unlikely that voluntary participation in any incentives program developed as part of a revised Part 420 would require implementation of a specific technology. It is more probable that the incentives program will specify target effluent reductions beyond BAT rather than a specific technology.

23) The Agency should consider incorporating credits for early reductions of pollutants associated with climate changes (e.g., greenhouse gases).

Response: Under the Clean Water Act, when developing technology-based effluent limitations guidelines, EPA must consider non-water quality environmental impacts, including energy consumption and impacts on air quality. To the extent reduction of greenhouse gases are relevant to consideration of non-water quality environmental impacts, they will be considered.

Multimedia Rulemaking Effort

24) A multimedia rulemaking effort is encouraged. To avoid a regulation that results in the transfer of pollutants to another media, the Agency should consider the environmental impacts and benefits for air, water, and solid waste. At a minimum, there should be constant communication between offices in EPA. The Office of Water and OAQPS need to share information and coordinate schedules.

Response: EPA agrees with the statement that the Office of Water and OAQPS should communicate regarding regulations under development that affect the same industrial sector. Such communication has in fact been occurring, and will continue to occur as the review of Part 420 progresses. Also, as noted in the response to the statement in paragraph 23, EPA must consider non-water quality environmental impacts as part of its consideration of BAT. Consequently, cross-media impacts will be considered. There is insufficient time under EPA's court-ordered schedule for revising Part 420 to conduct a comprehensive joint air/water rulemaking as suggested by the stakeholder.

25) The Agency may want to consider structuring the regulation for multimedia permitting - one total permit for air, water, and solid waste. Illinois is moving toward this type of regulatory permitting program, RegFlex.

Response: A revised Part 420 should be compatible with state initiatives for conducting multimedia permitting. EPA does not believe the basic structure of Part 420 needs to be changed to facilitate multimedia permitting.

Pollution Prevention

26) Industry should consider source separation as a means for pollution prevention and is encouraged to evaluate source reduction techniques, not just end-of-pipe treatment.

Has EPA looked at strategies for source reduction such as separating the inputs to certain processes (e.g., sintering)? Has source separation been used to pretreat scrap for zinc before charging into the electric arc and basic oxygen furnaces?

Response: Source reduction for certain processes is a possible means of reducing untreated wastewater pollutant loadings and thus possibly affecting the degree of treatment required to meet a given effluent limitations guideline or standard. However, for the electric arc furnace example cited by the stakeholder, pretreatment of scrap to remove zinc would not affect wastewater discharges because virtually all of the electric arc furnaces operating in the United States have dry air pollution controls. Consequently, only the zinc concentration in the electric arc furnace (EAF) dust would be affected. For basic oxygen furnaces, pretreatment of scrap to remove zinc might have some beneficial impact on reducing untreated wastewater loadings of zinc; however, EPA does not believe that source reduction alone would be sufficient to achieve the current BAT or a revised BAT based on high rate recycle of scrubber waters and blowdown treatment for toxic metals.

Technical Issues Related to Cokemaking, Integrated Steelmaking Through Hot Forming, Non-Integrated Steelmaking, Steel Finishing

Cokemaking (Figures 1 to 5)

27) What is the status of the integration of the water and the air rules?

Response: See the response to the statement in paragraph 23. EPA is not conducting a joint air/water rulemaking, but will consider non-water quality environmental impacts, including energy requirements and impacts on air quality.

28) Will EPA be incorporating the air analyses into the water analyses?

Response: See the response to the statement in paragraph 27.

29) Will OAQPS ask the same questions which were asked in Part B of the Office of Water survey? Additionally, is OAQPS going to look at the questions the Office of Water asked industry so that questions are not repeated?

Response: OAQPS will review the Office of Water survey before meeting with industry. OAQPS primarily asks for engineering cost data, but it does not collect company financial data. Facilities should not have to provide the same information twice.

30) EPA asked the site representative from ISPAT/Inland to describe the nonrecovery cokemaking facility which was installed in 1998. The site representative explained that Inland chose to shut down six by-product recovery coke batteries as a result of air regulations. He stated that the facility in Vansant, Virginia is a nonrecovery cokemaking facility, whereas the Indiana Harbor Coke facility is a nonrecovery cokemaking and heat

recovery facility, the first of its kind. So far, the coke meets blast furnace requirements, but the facility initially had problems related to waste heat boilers and cold weather.

Energy tax credits (derived from a 1970s energy bill for oil replacement that expired June 30, 1998) were a major driving force in choosing to install the heat recovery system. As a result of the agreement between Inland and the Indiana Harbor Coke Company, Inland buys steam and electric power from the heat recovery facility. Heat, steam, and power generation units at Inland have consequently been shut down. The site representative added that if it were not for the energy tax credits, Inland would not have chosen to shut down the by-products recovery batteries and invest in the nonrecovery cokemaking facility.

31) For the New Source Performance Standard (NSPS) options, EPA appears to be dictating that industry build nonrecovery cokemaking facilities based on the performance of only one or two batteries, including a battery that has had operational problems. The operational problems and the fact that the technology has not been demonstrated beyond a single battery are disincentives for the rest of industry to convert to this technology. Industry does not have enough experience or confidence in the nonrecovery process to replace all of the by-product cokemaking facilities in the country since it is a massive investment.

32) Industry has made a big investment in the current facilities. They have learned to modify and maintain their batteries with adjustments to meet the air regulations. Many companies simply do not ever consider nonrecovery. As companies invest more in their batteries to meet the air regulations, they get further away from considering change. Additionally, as investments are made to prolong the lives of the batteries, sites can no longer predict the life of the batteries.

33) One stakeholder suggested that if nonrecovery cokemaking was required at all facilities, then the option for deep well injection of wastewaters would no longer be available. The stakeholder observed that deep well injection is more environmentally sound than the nonrecovery cokemaking system since they do not have 100% efficient combustion.

34) Information handed out by the air representative indicated that AK Steel and LTV plan on building nonrecovery cokemaking facilities, even without the option for the tax credit used by Inland. An audience member suggested that EPA should follow up with these companies and find out their reasons for choosing the nonrecovery option.

Response to Statements in Paragraphs 30, 31, 32, 33, and 34:

Based on the commercial status of nonrecovery and heat recovery cokemaking technologies, EPA considers these technologies to be demonstrated for purposes of developing new source performance standards (NSPS) for a revised Part 420. EPA is also planning to review and propose appropriate BAT and NSPS for by-product recovery coke plants.

Sintering (Figure 6)

35) One audience member described how his site runs the sintering wastewater system supersaturated with calcium sulfate. He questioned the need for filters on both Options A and B, explaining that it would cause problems with filtering the calcium sulfate.

Response: EPA will consider this observation in assessing the model treatment technologies for sintering plants.

36) An audience member questioned the need for alkaline chlorination in Option B. He also asked why filters were needed for an in-process treatment system. If a site can optimize the pH in the system, then filtration is not necessary.

Response: EPA included alkaline chlorination in the model treatment technology for treatment of residual values of ammonia-N, cyanide, and phenolic compounds found in sintering and blast furnace wastewaters. Filters are included as a polishing step after metals precipitation. This technology is in use at many steel plants.

37) When considering Option A and the other options, EPA should keep in mind that the sinter plant has a large lay down area which comes in contact with storm water.

Response: See the response to the statement in paragraph 11 regarding storm water.

38) Is Option C only for NSPS?

Response: Option C is being considered for both BAT and the proposed NSPS.

39) One stakeholder pointed out that the OAQPS Maximum Achievable Control Technology (MACT) standards have tested both the wet and dry options.

Response: To the extent that EPA's MACT standards require wet air pollution controls for sintering operations, EPA will include BAT and NSPS based on wet air pollution controls in a revised Part 420.

40) One company representative explained that the company has a high energy wet scrubber on a stand-alone sinter plant that performs above and beyond the limitations required for sinter plants. The scrubber, installed to meet opacity standards, operates with a 98% recycle rate and a high dissolved solids content. Because they have high total dissolved solids in the scrubber, the system required the installation of a high efficiency separator. If EPA requires this site to recycle any more water, the dissolved solids would increase further. This problem initially arose because the site believed zero discharge could be achieved at the sinter plant and promised this to the state. In reality, they are unable to achieve zero discharge.

Response: EPA is not considering zero discharge as a BAT or NSPS for sintering plants with wet air pollution controls. The analysis performed to determine the percent recycle rate used to develop limitations will consider the impact of total dissolved solid concentrations.

Ironmaking (Figure 7)

41) For Option A, there is no such thing as a secure slag pit. Additionally, some companies are unable to achieve zero discharge by using their water to quench the slag and still have marketable slag because of possible impacts on slag quality.

Response: EPA is aware of ground water problems caused by slag quenching with blast furnace process wastewater at blast furnaces with slag pits that were not secure. There are, however, a number of blast furnace operators who perform slag quenching with blast furnace process wastewater, achieve zero discharge, and market their slag.

42) One company representative whose site achieves zero discharge as proposed in Option A said he has not heard of any complaints from the slag marketers. The site has a large storage capacity with an alkaline chlorination system. Storm water is also collected and treated in the system. One caveat to the zero discharge option, however, is that while certain facilities of this company have been able to maintain zero discharge of ironmaking wastewaters to date, it has only been possible during years of high production. When production is low, resulting in low slag production, the company representative is not convinced that a zero discharge practice will be attainable for long periods of time.

Response: EPA appreciates this observation and agrees that zero discharge of blast furnace process wastewaters based on slag quenching may not be a viable basis for an industry-wide technology-based regulation.

43) One site representative explained how his site has 350,000-gallon storage capacity; however, during the last few weeks before the meeting, excessive rain and thaws have caused the site to send 100,000 gallons off site for treatment. The stakeholder suggests that there is no such thing as zero discharge as considered in Option A.

Response: See the response to the statement in paragraph 42.

44) Is it appropriate for EPA to base BAT on alkaline chlorination for Option C with the possibility of generating chlorinated by-products? One stakeholder suggested that alkaline chlorination primarily affects ammonia. This technology would result in low amounts of ammonia being discharged; is this appropriate for a national regulation?

This process is difficult to operate, generates large amounts of lime sludge, and would be inappropriate to require for industry. Cyanide and phenol can be handled in much easier ways with granular activated carbon. Clean Water Act Section 301(g) variances and

blowing down to slag quench have become the preferred options for handling ironmaking wastewaters.

Response: Alkaline chlorination is the model technology for BAT and NSPS in the current regulation and is demonstrated in the industry. Available data do not suggest formation of chlorinated organics outweighs the effluent reduction benefits for ammonia-N, cyanide, and phenolic compounds. EPA will continue to review this technology as an option for BAT and NSPS.

45) For Option C, filtration is not useful as shown after the clarifier. Filtration would be better before alkaline chlorination because the particulates consume the chlorine.

Response: For those alkaline chlorination systems in operation, the filter is used at the end of the treatment train as a polishing unit to remove fine metal precipitates and other pollutants attached to solids that may remain after preceding treatments.

46) One site representative explained that his site runs their system as shown in Option B; however, they operate the filters with difficulty because of scaling. The filters are now on standby, but they are hard to maintain.

Response: EPA appreciates this observation and will investigate scaling further. It would appear that scaling in the filter could be minimized by more effective precipitation in the clarifier ahead of the filter.

47) Why is EPA considering the control of gas condensates through BMPs? In a blast furnace with a high energy scrubber, the condensates are clean.

Response: Blast furnace gas condensates have been shown to contain ammonia-N, cyanide, and phenols at some plants. Thus, EPA believes they should be included in the blast furnace recycle system to avoid contamination of noncontact cooling waters. EPA is currently evaluating proposed BMPs and will consider whether they are appropriate to address different types of blast furnace condensates.

48) If blast furnace condensates are contaminated with cyanide, phenols, and polycyclic aromatic hydrocarbons (PAHs), and these condensates pass over open air cooling towers, then this becomes a multimedia issue. If the Office of Water wants to consider this option for BMPs, they should consult OAQPS.

Response: As noted in the response to the statement in paragraph 47, blast furnace gas condensates can contain contaminants associated with blast furnace operations and found in blast furnace scrubber waters. Undoubtedly, some level of air stripping of these compounds occurs across open cooling towers used at every blast furnace plant with a recycle system. However,

the pH of the recirculating waters is usually slightly acidic to neutral, such that stripping of ammonia or cyanide is not highly efficient.

Continuous Casting (Figure 12)

49) The filter backwash to a holding tank and sludge dewatering in Option A should have a clarifier devoted to the backwash. The caster sludge would settle out in the clarifier before being pumped to vacuum filters. A separate clarifier is needed, otherwise the system would be recycling fines.

Response: EPA agrees with this observation and expects to include a backwash clarifier for the continuous caster filter backwash.

Hot Forming (Figure 13)

50) Why are cooling towers used in the hot forming recycle system shown in Option A? One site adjusts the source water feed rate to meet the temperature requirements of the mill.

Response: Cooling towers are included in the recycle system for hot forming mills to provide temperature control for product and roll cooling. Temperature control is an essential element for this application and is in use at many hot forming mill process water treatment and recycle systems in the industry.

Non-integrated Steelmaking (Figure 14)

51) For Option C, there is a potential for zero discharge most of the time, but not under all conditions.

Response: It is unlikely that EPA will propose an industry-wide standard based on zero discharge for non-integrated mills.

52) For the Best Practicable Control Technology (BPT), the clarifier is an extraneous unit. A scale pit can achieve what EPA is seeking.

Response: There are mills that operate with a large scale pit in lieu of a clarifier as shown in EPA's model technology train. However, EPA included a roughing clarifier for removal of additional oil and suspended solids, thus reducing the load on the filter plant, and as a more conservative costing approach.

53) Does EPA need all of these clarifiers in BPT and Option B? For Option C, one site uses water for slag cooling and then some is left over. The site has so much total dissolved solids and total suspended solids that it would be difficult to use for cooling, quenching, or conditioning while meeting air limitations.

Response: See the response to the statement in paragraph 52. EPA agrees that for carbon steel non-integrated mills, a clarifier may not be necessary as part of the blowdown treatment system.

54) If EPA proposes any of the options, sites may need to blow down to get rid of the constituents building up in the system.

Response: See the responses to the preceding paragraphs (52 and 53).

55) Where did EPA get the 3% value for blowdown in Options A, B, and C? Zero discharge should also be based on the quality of makeup water. If a site needs to pretreat makeup water, then there will be a discharge from that system.

Response: See the responses to the preceding paragraphs (52, 53, and 54). A 3% blowdown is achieved at a number of non-integrated steel mills and represents a nominal blowdown value for preliminary design purposes. EPA expects that questionnaire responses will be useful to refine this value.

Steel Finishing (Figures 15 and 16)

56) What is meant by the recycle of fume scrubber water?

Response: Fume scrubbers are used on acid pickling lines to control acid fumes from the pickling operation. Water is used in the fume scrubber to absorb the acid fumes. The scrubber water can be recycled to minimize the amount of water requiring end-of-pipe treatment.

57) The proposed option runs in direct contrast to the current MACT standard. Sites will be using more water in the processes rather than recycling water because cleaner water is required to meet the air regulations. Additionally, recycling will cause the formation of salt which will plug the sprays.

Response: Recycle of fume scrubber water has been a well demonstrated technology for many years. To the extent a MACT standard requires additional control which results in additional water use, or treated water use, the additional water will be considered in the revised Part 420.

58) One site stated that they recycle some of the steel finishing effluent back to the pickle baths which have direct heating.

Response: Recycle of treated effluents may be possible in some steel finishing applications, but EPA is reluctant to consider recycle of treated effluents as an industry-wide standard because of product quality considerations.

59) One stakeholder remarked on the summary distributed as Enclosure C to the Chicago stakeholder attendees. As the source for the statement in Paragraph No. 79 of the

summary from the Washington DC meetings in December 1998, he said that his statement was misinterpreted. His statement was that, as an alternative, acid rinse water could be treated first and effluent recycled as makeup to fume scrubber water with a high pH, not recycled as makeup to the acid tubs as written.

Response: EPA has made this change in the final record document summarizing the December 1998 Washington DC meetings.

60) Does EPA have any strategies for encouraging industry to change the acids used in the process? One suggested change which has been seen in industry is to substitute methyl sulfonic acid for hydrofluoric acid. One stakeholder asked if it was possible to substitute trivalent chromium for hexavalent chromium. Another audience member offered that the Common Sense Initiative (CSI) had prepared a report on chemical substitution that may be useful for ideas of source reduction.

Response: The stakeholders raise several good points; however, it is unlikely that EPA will be able to consider extensive process modifications in steel finishing due to the time constraints imposed on the Part 420 project.

61) One audience member suggested changing "metabisulfite" on Figures 15 and 16 to "chemical reducing agent" because there are a number of other chemicals that can be used.

Response: EPA agrees that a number of chemical reducing agents can be used to treat hexavalent chromium. Sodium metabisulfite is commonly used and may be used in the treatment technology cost model by EPA.

62) On Figures 15 and 16, why are there no units for flocculation tanks and chemical treatment?

Response: EPA considers the clarifiers in Figures 15 and 16 to be flocculator/ clarifiers. Chemical treatment (storage) tanks are not shown to simplify the schematic diagrams.

63) On Figure 16, what is the purpose of a separate aeration tank? Why not just bubble air into the equalization tank?

Response: Air can be bubbled into an equalization tank to achieve the same end as a separate aeration tank. A separate aeration tank may be used for a more conservative costing approach.

64) For the hot dip coating lines, generally no zinc is present in the cleaning sections that precede the coating operation.

Response: EPA agrees with this observation.

65) Figure 15 should show pH control before hexavalent chromium reduction for carbon steel.

Response: EPA agrees that pH control is an integral part of reducing hexavalent chromium to trivalent chromium.

66) Two audience members disputed whether the notes on Figures 15 and 16 should read "chromium bearing" or be changed to "hexavalent chromium bearing". The stakeholder who suggested changing it thought it was unintentionally addressing trivalent chromium from waste pickle liquor. The second stakeholder felt that it was appropriate to leave the note as is because chromium bearing waste streams are the only ones to create a potentially hazardous sludge. There is an advantage to preventing hexavalent chromium or trivalent chromium sludge from entering end-of-pipe treatment systems.

Response: The notes on Figures 15 and 16 pertain to pretreatment of low-volume hexavalent chromium wastewaters prior to commingling with other waste streams.

67) Several audience members suggested that a sludge thickener is necessary after clarification.

Response: EPA agrees with this observation.

68) Audience members representing wire facilities stated that their facilities have filters after the clarifiers; older systems tend to not have the filters.

Response: EPA agrees with this observation. Nonetheless, EPA may include polishing filters as part of the model wastewater treatment systems for certain steel finishing operations.

69) One audience member asked why a flocculation tank in addition to polymer was not included. For specialty steel, can oil removal be conducted in the equalization tank?

Response: See the response to the statement in paragraph 62 regarding flocculation. EPA agrees that oil removal can be conducted almost anywhere in a steel finishing treatment plant; however, common practice is to pretreat emulsified oils and waste streams with high oil loadings prior to metals precipitation to allow for less oil in sludges and to minimize downstream treatment problems (e.g., fouling filters).

Attachment A

Iron & Steel Stakeholder Meeting - January 27, 1999

Name	Affiliation
William Anderson	U.S. EPA - EAD
Elwood Forsht	U.S. EPA - EAD
Sheila Frace	U.S. EPA - EAD
George Jett	U.S. EPA - EAD
Kevin Tingley	U.S. EPA - EAD
Irvin Dzikowski	U.S. EPA - Region 5
Lula Melton	U.S. EPA - OAQPS
Carol Ann Siciliano	U.S. EPA - OGC
William Sonntag	U.S. EPA - Office of Reinvention
Ed Wojciechowski	U.S. EPA - Region 5
Chris Avent	North Star Steel
Barbara Bachman	Bethlehem Steel
Douglas Bley	Bethlehem Steel
John Dado	Calumet Steel
Lois Epstein	Environmental Defense Fund
Pat Gorman	Environmental Process Technologies
Frank Grimes	United Steel Workers Association
Mark Haase	Charter Steel
Dick Johannes	Leggett and Platt
Bob Johnston	ISPAT Inland
David E. Long	Northwestern Steel and Wire
George Kannaper	STS
George P. Kay	Armco Inc.
Brad Koltak	Koltak Engineering Services
Bill Kulbida	ISPAT Inland Inc.
Paul G. Nelson	Relbek Consulting

Name	Affiliation
John Olashuk	National Steel
Harvey Pierman	American Spring Wire
Dennis Poulsen	California Steel
Charlotte Read	Save the Dunes Council
Carl Rutkowski	Charter Steel
Bill Samples	Wheeling-Pittsburgh Steel
Tom Shepker	WCI Steel
Jim Volanski	US Steel
Randy Welsh	Midway Wire
Jeffrey Wentz	Acme Steel
Dave Woodbury	American Wire Producers Association
Gary Amendola	Amendola Engineering
Purvagna Amin	Eastern Research Group
Deborah Bartram	Eastern Research Group
Jennifer Conner	Eastern Research Group
Brian King	Eastern Research Group